



Bulbs

NEWSLETTER OF THE INTERNATIONAL BULB SOCIETY • VOLUME 1, NUMBER 2 • FALL 1999

The Spice of Life

by Alan W. Meerow

Ginger ale, ginger beer, ginger snaps. Just the name alone evokes a taste that is unique, exotic, and, to some palates, acquired. Sometimes spicy, sometimes mild, but certainly unlike anything else. Yet from the same family of plants as the spice of commerce, the Zingiberaceae, comes a host of plants with equally exotic floral beauty that can grace our landscapes with the same unsubtle zest as the rhizomes of *Zingiber officinale* contribute to our cuisine.

The Ginger family is overwhelmingly a tropical group of plants. Several genera, however, extend into the warm temperate zones of their respective home turf, thereby allowing use in gardens through USDA Zone 6-7. Then, too, the rhizomatous nature of a number of the more tender species lends them an outdoor utility beyond what their origins would suggest. While the top growth will freeze down to the ground each year, the perenniating rootstock survives

below ground and returns to life in the spring. In colder climates, the rhizomes can be lifted after the first frost kills the foliage in autumn, and stored in much the same manner as dahlias, gladiolus and cannas.

The Ginger family is a fairly well-marked group of herbaceous perennials related to the bananas, heliconias, bird-of-paradise and prayer plant families. All produce their leaves and stems from underground rhizomes (often delightfully aromatic). The leaves may rise directly from the rootstock or else are borne on elongated "pseudo"stems formed by the sheathing leaf bases. The flowers, which are quite diverse, have one thing in common: the showiest part of the flower is not a petal but is in fact formed by two sterile stamens (technically, staminodes). This structure is often referred to as a lip. In addition to ginger, the family contributes the spices cardamom and turmeric to delight our palates, as well as ingredients for some perfumes. There are about 50 genera in the family, and over a thousand species, the vast majority found in Asia, but several genera occurring in the Americas as well.

Gingers have a number of useful functions in the landscape. The banana-like foliage of many contribute to an overall tropical aesthetic, and the long-lasting flowers have extraordinary exotic appeal. A few can even function as ground covers. The vast majority prefer bright, filtered sunlight; in full sun the foliage will be difficult to keep deep green and unblemished. By and large,

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Growing Bulbs from Seed

by Dr. Jack Elliott

This is an essential technique for any gardener wishing to grow the less common species of bulbous plants. Although a huge selection of hybrids and cultivars of the most popular species is readily obtainable many of the species themselves are slow to increase vegetatively and are therefore not grown by nurserymen or are only available rarely and at a high price. Growing these from seed makes it possible to build up good stocks of them at low cost and enables one to experiment with growing them in different situations.

The fact that most hardy bulbs take from three to six years to attain flowering size from seed seems to put many gardeners off growing them, but in practice after a year or two of regular seed-sowing there is always the excitement of new plants coming to maturity and the lapse of time is forgotten.

Methods

Some of the advice offered on seed-sowing seems complicated or even daunting, especially when it covers the use of Gibberelins and sowing on paper, methods that have been evolved as a result of careful research on difficult to germinate seed, and that are totally unnecessary for at least 95% of bulbs. The methods described here have been used for a great many years with good success in the UK and in areas with a similar cool winter climate. I believe they could be adapted in hotter areas

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President's Message

By Robert Turley

Greetings bulbophiles around the world! We send a special welcome to our new members who have recently joined the International Bulb Society. We know you will enjoy the fascinating world of bulbous plants and the friendships you will make over the years through your membership in IBS!

I will have completed my first year as President of the International Bulb Society in mid-January 2000. It has been an exciting as well as a challenging first year. About the time you think everything is in place and functioning, it changes abruptly. Of course, this is not unusual and can be expected with a society fully staffed by volunteers. That means volunteer members are providing the leadership and services for the rest of us. Being a volunteer-run organization there are the "ups and downs" in maintaining uninterrupted services to us the membership. So, it is not surprising to find new names doing the functions that someone else was doing just a short time ago.

Thankfully with the electronic mail and chat forums we can move quickly to keep the ball moving when a volunteer is not able to provide or continue in their current capacity for the Society. A special thank you goes to Arnold Trachtenberg of New Jersey for volunteering to do double-time. He is serving as Acting Editor to provide the leadership necessary in executing the duties of that office to keep our publications coming until a new Editor is appointed. Arnold is currently Director for Mailing and Archives.

If there were a theme to this Message, it would be VOLUNTEERISM! The International Bulb Society stands at the new century just "bursting at the seams" to grow and bloom as "the new Bulb Force in the bulb world" (la nouvelle force des bulbes dans le monde des bulbes), but? We need members joining hand-to-hand (main dans la main) all around this globe to accomplish this! Our message is bulbs! They are easy, they are challenging, they are fun, and they are friendship makers!

I know there are skills and talents in the membership make-up of IBS. The major problem with any volunteer organization, however, is identifying individuals who have the time, energy, desire, and the necessary skills and expertise to perform specific tasks that the International Bulb Society needs to accomplish. It takes many diverse skills and talents to maintain an organization. Have we overlooked you? Is there something that you can do for the Society? Please contact me if there is?

I would like to recognize three new affiliated bulb groups and their Presidents that have organized recently. They are the Pacific Bulb Society headed by Cathy Craig of San Clemente, California. E-mail: batlette@home.com; New York Bulb Society headed by Lawrence Edmonds of Sunnyside, New York. E-mail: cle11104@hotmail.com; and the Great Lakes Bulb Group headed by Jim Shields of Westfield, Indiana. E-mail: jshields@indy.net. Congratulations and we look forward to hearing of your activities and growth.

Diana Chapman has been added to the IBS team of volunteers as Advertising Manager. She can be reached at this address: Diana Chapman, Coordinator - IBS Advertising, P.O. Box 4978, Arcata, California 95518. USA. E-mail: IBS.ads@workmail.com. Dave Lomba has also joined the team to assist Diana. We appreciated Diana and Dave coming aboard.

As we enter the year 2000 and 21st Century with all its expectations, all the volunteers that make up the IBS Board of Directors, Representatives and helpers, send each of you best wishes for the coming year. We are planning, developing and making changes for the new century to make the International Bulb Society a better and more appealing bulb society to a broader range of audience. We think you will like it! 

Posterity and your Bulb Collection

By James E. Shields

We have had two pointed reminders in the past year that none of us is likely to be immortal, in the unexpected deaths of two bulb growers and breeders, Messieurs Ed Zinkowsky and Fred Meyer. Both men were in their 50s. What becomes of our bulb collections when we are gone? In the case of the Zinkowsky collection, many of the plants and nearly all of the documentation were lost. Volunteers from I.B.S., funded by donations to a special fund and by share purchases from I.B.S. members, did manage to rescue most of the Nerine hybrids in the collection.

We should give some thought, right now, to what we want to become of our own plants after we are gone. This is particularly important if you have rare species and wild-collected plants in your collection. Most hobby gardens are run by one individual, and after his or her death, the surviving spouse often has no interest in the plants. They may go into the trash, be plowed under, or simply be abandoned to time, weather, and weeds.

Suppose you want to have some control over what happens to your plants after you have gone. How can you be

sure that they will go where you specify? To whom can you bequeath them?

First and most obviously, you will have to make a will. This will cost some money, perhaps even the equivalent in value of several of the better bulbs in your collection. If you are skeptical about lawyers, there are computer programs which purport to eliminate the need for a lawyer in creating a will; these you use at your own risk. In any case, be sure you do something while you still can!

At least as important as the paper document will be the selection of a willing and competent recipient for your plants. Many botanical gardens and universities may also be reluctant to accept responsibility for valuable plants for which no one on their staffs has any special interest. You will have to find a potential recipient yourself, one who is willing to accept the plants eventually and who is qualified to grow them. Please note that I.B.S. does not want physical custody of your bulbs!

So where does your bulb collection stand, vis a vis "posterity?"

Bulb Rescue and Conservation Committee

By Jim E. Shields, Chairman

The rescue of the Zinkowski bulb collection, mentioned on the left and in a previous issue, has arrived at its end. Steve Vinisky has earned a very hearty "Well done!" for his handling of the whole project.

Most if not all of the hybrid Nerine bulbs in the collection were salvaged by Steve and redistributed to those individuals who contributed to their rescue through their financial support of the Zinkowski Fund.

The Board of Directors has closed the Zinkowski Project and Fund. If there are any bulbs from that program left in Steve's possession, they are now turned over to him to dispose of as he sees fit. Similarly, Steve and IBS treasurer Cathy Craig have agreed that Steve will accept the hardware we purchased with Zinkowski Fund money for the Zinkowski program as compensation for any remaining unreimbursed expenses on his part. The Board has ratified this agreement, as it suits our policy of not becoming an operator of any greenhouse or nursery.

This was a novel project, and it inspired the formation of a new standing committee for the conservation and eventual rescue of bulbs. Steve has handled the operation very well indeed, and it appears to have been very successful. The bulbs were saved, and moreover they found their way to new homes where they were wanted and will be well cared for.

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gingers are water-hungry plants when in active growth, with equal appetite for fertilizer. During winter dormancy, the rhizomes are quite drought-tolerant, but will not object too strenuously to the occasional irrigation or downpour. Pests and diseases are not legion; canna leaf-roller caterpillars may chow down on the foliage of some, as will slugs and snails. Some leaf spot fungi and bacteria have been reported on various gingers, but for the most part, the gingers remain pest and disease free. All can be propagated by division of the rhizomes or seed (if produced). Some will strike from stem cuttings. With these preliminaries aside, let's explore what the ginger family has to offer from A to Z.

Alpinia, the Shell gingers. This large genus has only been marginally exploited horticulturally in this country, though the few species commonly grown are widely appreciated. The genus *Alpinia* contains nearly 200 species of mostly tall-growing herbs from the tropical forests of China, India, Southeast Asia and tropical Australia. Red ginger, *A. purpurata*, and *A. zerumbet* (Shell ginger) are the best known. Red ginger can easily reach 12 feet in height, with leaves borne throughout the length of the long pseudostems. The erect flowerspikes are nearly a foot long. The small white flowers are barely noticeable, nestled within showy red or pink bracts. Red ginger is an excellent cutflower, as well. A number of outstanding cultivars have been selected from the species. Red ginger often produces plantlets in-between the colorful bracts; these can be removed and grown on. *Alpinia zerumbet*, the shell ginger, does not grow as tall as Red ginger, generally staying below six feet. The flowerstem is pendent in this species, and without bracts. The fragrant flowers, held in pairs down the axis of the stem, are mostly white, with a hint of purple. The

lip is large and showy, wrinkled, and colored yellow with red and brown stripes. Much more widely grown is the form 'Variegata,' with leaves striped and splotched yellow. Variegated shell ginger can be a wonderful accent in a landscape, but, if over-used, can appear somewhat garish. Also variegated, *A. vittata* from the Solomon Islands, can be expected to get little more than three feet tall. The narrow leaves of this species are striped green and white. Its flowerstem is nodding, with pink-tinged green bracts. The flowers themselves are not terribly showy, but the densely clumping bi-colored foliage is striking and less ostentatious than Variegated shell ginger. *Alpinia mutica*, Orchid ginger, usually remains below four feet in height. The showy lip of its flowers is yellow-orange with red lines and spots. The otherwise white flowers are produced on an erect flowerstem in groups of two or three. *Alpinia* species are only reliably hardy in USDA Zones 10-11, but rhizomes have successfully overwintered to zone 8B.

Costus, or Spiral ginger, comprises nearly a hundred species of tropical American and African rain forest understory herbs. The stems are arranged in a distinctive spiral fashion on elongated

stems. As a group, the Spiral gingers are shade-loving plants. They thrive, on rich, moist soil, and the taller-growing species can function as screening elements in a shady tropical garden. The stems are a bit lax in habit, and the plants can become ungainly if allowed to proliferate unchecked. The showy flowers of *Costus* are produced in on short, terminal, pyramidal inflorescences of densely packed, overlapping bracts. Some species also produce flowers on short leafless stems that arise from the rhizomes. The lips of Spiral flag flowers are usually over 2" wide. *C. speciosus*, one of the few Asian species, is a rank, tall growing species (10') with spiny-tipped red bracts and white flowers. The lip is enormous, almost 5" across, and is white with a yellow center splotch. *C. arabicus*, from Brazil, has leaves that are purple on the underside and white and yellow flowers that emerge from red and green bracts. It generally stays at four feet in height. *C. spicatus*, from Hispaniola, can top eight feet. The large lip is red or yellow, exploding from between red bracts tipped in golden yellow. *C. lucaniansianus*, to six feet, is a vigorous African species with leaves that are densely hairy on their underside. The lip is



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white edged red with a yellow stripe down the middle. *C. malorteanus*, is generally under three feet. The leaves are broad, somewhat succulent, hairy and attractively mottled with dark green on a lighter background. The flowers are yellow, the lip striped in brown or red. *C. cuspidatus* (*C. igneus*), aptly named Fiery or Orange costus, is a dwarf species (never more than 2 feet tall) from Brazil, useful in the perennial border or as a potted plant. The brilliant orange flower features a broadly round lip nearly 3" across. Many other costus species appear from time-to-time at specialty nurseries, often unidentified as to species. Spiral gingers can be propagated from stem cuttings.

The forty species of *Curcuma* are found throughout tropical Asia and Australia, all inhabiting monsoonal forests and other seasonally dry vegetation. All are short-statured plants relative to many other gingers, rarely exceeding 3 feet in height. Most have fleshy roots and reed-like stems bearing fairly broad leaves. Several species have culinary economic importance. From the dried rhizomes of *C. longa* the bright yellow spice and dye tumeric is prepared. The spice zedouary is prepared from *C. zedouaria*. *C. amado* is used a mild ginger substitute in pickles. *C. angustifolia* produces root tubers from which Indian arrowroot is derived. The flowerstems of many *Curcuma* species rise directly from the rhizome, either alongside the leaves or sometimes before them. The waxy flowerstems are conical and densely flowered. Only the lower bracts bear flowers; the upper bracts are sterile and usually colored differently from the lower ones. In addition to the species previously mentioned, all of which make fine ornamentals, *C. petiolata* (Queen lily), with green lower and purple upper bracts, and *C. roscoeana*, with entirely orange-red bracts are frequently available. *C. latifolia* bears leaves that are downy on

the underside and feature a purple midvein; the lower bracts are green with a red tip, the upper ones bright red and white at their base. The flowers of most species are either white or yellow. Curcumas make striking perennials in bright partial shade to nearly full sun, from Zones 9-11.

Anyone who has visited Hawaii and been bedecked with the traditional lei, has had a close encounter with the genus *Hedychium*, the Ginger lilies. The fragrant flowers of several species are used in those Hawaiian garlands. The genus consists of about 40 species from tropical Asia, the Himalaya and Madagascar. Ginger lilies are tall-growing plants from stout rhizomes, with many erect, reed-like stems clothed for most of their length with broadly lance-shaped leaves. Some of the Himalayan ginger lilies are hardy to zone 8; the vast majority to zone 9. The species are typically dwellers along streamsides and other moist places. Several attractive interspecific hybrids have been created and are sometimes offered by specialty nurseries. *H. coronarium*, the white ginger lily, has even become a weed throughout the tropics, forming dense colonies at the margins of rice paddies, irrigation ponds, and roadside ditches. *H. flavescens* and *H. flavum*, also from India, are fragrant yellow-flowered species. Both *H. coronarium* and *H. flavum* are hardy to at least zone 9. *H. gardnerianum*, Kahili ginger, with yellow and white flowers, and *H. densiflorum*, with red or orange flowers, may be the hardiest Ginger lilies of all (zone 8). Several cultivars of the latter have been described. Red ginger lily, *H. coccineum*, varies in flower color from orange, to salmon to deep red. 'F. W. Moore' is a fine hybrid between this species and *H. coronarium* with fragrant, yellow and orange flowers. Ginger lilies make superior conservatory plants, and may be well-situated at the margins

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Book Review

The Genus Galanthus

by Aaron Davis

reviewed by John Grimshaw

The Royal Botanic Gardens, Kew in association with Timber Press 1999
ISBN 0-88192-431-8

For several days I have been clutching the review copy of *The Genus Galanthus* as if it were likely to be snatched away from me. There are many people who would snatch it, as Aaron Davis' book has been eagerly awaited by snowdrop growers for what seems to have been many years. At last, however, it is here and the anticipated interest makes the delays in producing the book seem incomprehensible.

The Genus Galanthus is published as part of the *Botanical Magazine* Monograph series under the auspices of the Royal Botanic Gardens, Kew, where Dr. Davis is a research scientist. It maintains the uniquely high standards expected of this series, both in text and production, and, as always, the specially commissioned botanical illustrations, in this case by Christabel King, elevate it to a higher plane. It is a botanical monograph, describing the 18 species of snowdrops and their taxonomy with scholarly precision. It is based on long study in the herbarium and laboratory, but also in the wild, for Aaron Davis has travelled many thousands of miles—by road—in eastern Europe and Turkey to study his subject in nature. This delimitation is in part what we have been waiting for, resolving many muddles that have arisen over the years, but it is far more than a dry academic tome. The author is a keen gardener himself, and has grown snowdrops for years in his own garden. In consequence the book is full of sound advice for gardeners, and there is a valuable chapter

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with some method of providing a cool period of three months in winter, for those hardy species that need it.

It is difficult to recommend composts to an international readership as so many different formulae are available in different countries, but in practice this is of surprisingly little importance as long as it is very well drained. In the UK for general seed-sowing I favour one of the many peat-based composts, to which I add a third of its bulk of Perlite or coarse sand to improve the drainage. I have used this for bulbs with reasonable results, but as the seedlings will remain in the compost for a year or more I prefer a loam-based compost, for example John Innes Seed or No 1 compost with again a third of perlite or coarse sand, or a home-made mixture of one part each of loam, peat or leaf-mould, and sand or perlite, with John Innes base fertiliser or bone meal. I generally prefer Perlite in seed composts as it makes the seedlings easier to separate when repotting, but as bulbs are easily separated when dormant grit is equally suitable.

I always use plastic pots as they retain moisture better than clay pots, and square pots help to save space. Fill the pot to about 2 cm below the rim, depending on the size of the pot, firm the compost, and sow the seed thinly on the surface. For large flat seed this means at least a seed's width between seeds, and for small seeds sufficient space to ensure that the young plants will not be too crowded at the end of a growing season. Cover the seeds with enough compost to hide them completely and then with a generous layer of at least 1-1½ cm of clean grit, preferably 3-5mm in diameter. A deep grit layer is very important because it helps to retain moisture and it prevents the seed being moved by heavy rain or watering. It never restricts germination.

After labelling the seed pots with at least the name of the plant and date of sowing, they are put in a fully shady place open to the rain, snow, and frost, and watered overhead if they become dry.

When to sow

This depends on when the seed is received, but for most bulbs the ideal time is between mid-September and mid-November in the Northern hemisphere. Sown then they will nearly always germinate during the following spring. If the seed is not available until later then sow it immediately, but if it is sown after Christmas germination will often be delayed until the spring a year later. Keep the seed pots watered throughout the summer and eventual germination will be good. The seed pots should ideally be kept for at least four years. It is not unusual to get excellent germination three or four years after sowing.

After Germination

As soon as the seed germinates the pots should be brought into more light, preferably an unheated greenhouse or alternatively a frame. They should be kept watered until the leaves turn brown and are clearly becoming dormant. The longer they can be kept growing the better, and a few bulbs, mainly tender, may keep growing without a rest for a year or longer. When they are definitely dormant, the pots of most genera should be kept dry but not

'baked'. At one time most growers kept their pots as hot and dry as possible, but experience suggests that they do better resting without water in a cool place, for example under the greenhouse staging, until it is time to repot them or to start them into growth, usually in late August and September.

Repotting

At the end of their first growing season the bulbs of most hardy genera are very small, and if they are repotted then many will be overlooked. As a general rule it is best to grow them on in the same pots for a further year. They will then be easy to find and repot in fresh compost. Most growers give their pots of seedlings a liquid feed every two or three weeks, of a soluble fertiliser at half the strength recommended for adult plants, and although not essential this probably produces flowering plants more quickly than if no extra feeding is given. An alternative is to put the whole potful undisturbed into a larger pot of compost with more fertiliser, at the end of the first dormant period or while still in growth if they are reluctant to die down. Some bulbs make sufficiently good growth in their first season, as indicated by the large leaves becoming crowded, for them to be repotted then.

When repotting I use a loam-based compost, with at least a third of grit or coarse sand for drainage and a long-acting fertiliser. John Innes Compost No. 3 with generous extra grit, or a mixture of loam, peat and grit with a long-acting fertiliser are satisfactory.

Woodland Bulbs

Many bulbous plants grow in humus-rich soils in partial or full shade and these require slightly different treatment. Sterilised sieved leaf mould is an invaluable constituent and a seed compost of equal parts of leaf-mould, peat, and perlite or coarse sand, is ideal for woodland bulbs like trilliums and erythroniums. After germination they should be kept in shade and well



watered at all times, not letting them dry out completely during dormancy. A similar compost with more fertiliser is suitable for their later repotting. Many of these bulbs are slow to reach flowering size and a lot of work with repotting can be saved by planting out the whole potful of seedlings after two or three years into a specially prepared humus-rich bed, where they can be left until they flower.

Lilies are perhaps a specialised topic for this article, but generally they do well in a similar 'woodland' compost, but they should be repotted quickly. After germination they make a second and further leaves quickly, and can then be separated and repotted in growth, three to a 3 1/2in pot or more in a larger pot, or the whole potful of seedlings can be put in a larger pot and then separated in their first autumn.

Tender Bulbs

Seed of tender bulbs germinates best in a heated house or with bottom heat in our climate. After sowing in the usual way I keep the pots on a bench heated with soil-warming cables to about 70F until they germinate, usually within a few weeks. I remove them from the heat if they have failed after three months, and if the danger of frost is over I put them outside with the other ungerminated seed. After germination they are grown on in a frost-free house and treated like other bulbs, but they often make better growth than hardy bulbs and many of them can be repotted earlier. This is particularly true of the larger watsonias, agapanthus, crinums etc.

The question of when to sow is tricky for these bulbs. Many of the most popular are from South Africa and their

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IBS Publication Committee Searching for Diverse Talent

VOLUNTEERS NEEDED. The major problem facing any volunteer organization, such as the International Bulb Society, is identifying individuals who have the time, energy, desire, and the necessary skills or expertise to perform specific tasks IBS needs to accomplish.

DIVERSITY OF TALENT. A wide array of talents is necessary to develop an issue of our newsletter, BULBS. There is a need to research, write, proof, and illustrate articles for publication. Anyone who has taken college level writing classes, or has a natural flair for writing would be a welcomed member to the Editorial Committee.

COMPUTER CAPABILITY. Computer word processing "know-how" is essential. Either Macintosh or Windows word processor files can be imported into the Desktop Publishing document. Files can be attached to an e-mail message or a disk can be sent through the mail.

ILLUSTRATIONS. A quality publication requires photographs and/or graphic illustrations. Anyone having experience shooting 35mm color slides would be a welcomed addition to the Editorial Committee.

ADVANCE PRODUCTION SCHEDULE. It is necessary to be actively working on a minimum of two issues while the current issue scheduled for publication is being sent to the printers. This requires more individuals to become involved, however it reduces the individual workload. It also provides a cushion in the event of an accident or illness.

IBS NEEDS YOU. A call for volunteers is out! We need volunteers from all around the globe! Individuals, who would like to serve on the IBS Publication Committee, please E-mail me at RMTurley@aol.com. Thank you. I look forward to hearing from you. Robert M. Turley, President - IBS, 7101 Gulf Hwy., Lake Charles, LA 70607-7414 USA.

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growing season depends on whether they are from summer or winter rainfall areas, the latter being the more widely grown. It is usually recommended that these should be sown in late summer. They will then germinate quickly and enjoy their normal growing period if they are kept in a warm greenhouse. The summer rainfall bulbs are usually sown in late winter or early spring. My limited experience suggests that little harm is done if the seed of winter growers is also sown in spring. The majority germinate in heat very quickly and can then be kept growing for a longer time than when sown in autumn.

Experienced growers of Cape bulbs usually recommend a much sandier compost both for seed sowing and later potting than I have suggested, for example three parts coarse sand to one of compost, with regular liquid feeds.

Special considerations for some hardy genera

Although the methods described above work well for most hardy bulbs, a few observations on specific genera may be helpful.

Narcissus

Although there is such a huge range of hybrid daffodils on offer the species are less readily available and growing them from seed is the answer, although they usually take four or five years to maturity. Some work can be saved by planting out the potful of seedlings in the garden after three or four years. Some narcissi self-sow very effectively, for example *N. rupicola* in a very well-drained bed, and *N. cyclamineus* if it is grown in its favourite 'woodland' conditions, in partial shade with plenty of leaf-mould. When growing on the young seedlings it is worth remembering that many species, for example *N. triandrus*, *N. bulbocodium* and *N. pseudonarcissus* forms, do best in similar woodland conditions and should be kept slightly moist when dormant.

The species from Southern Spain and North Africa on the other hand do better with the standard treatment of a drying off period in summer.

Tulipa

Tulip species have a reputation for taking a long time to flower from seed, but I find most flower in four or five years, or occasionally in three, with the standard treatment. One of the most satisfactory is the late-flowering *T. sprengeri* which brightens the garden with its scarlet flowers long after the spring bulbs are over. It will often flower in three years, and once established it sets a mass of seed and self-sows freely in the garden. *T. sylvestris* is the one species best treated as a woodlander.

Crocus

Many *Crocus* species increase well vegetatively, but some are slow and not readily available from nurseries. These can be grown easily from seed and generally flower within three years. When looking for the seed capsules one should remember that the autumn and spring-flower-

ing species all mature at the same time in spring, and also that in many species the capsules are at or just below ground level. The normal treatment suits most of them but a few species thrive with 'woodland' treatment, notably the beautiful autumn flowering *C. banaticus* with its lilac iris-like flowers. The rare and more tricky yellow species *C. scardicus* and *C. cvijicii* seem also to do better if they not allowed to dry out in summer. The autumn-flowering species start into growth very early, and should be watered in August. The seedling bulbs of all the species are very small and it is as well not to bake them, as they may shrivel to nothing if overdried.

Iris

The two main sections of bulbous irises, *Reticulata* (subgenus *Hermodactyloides*) and *Juno* (subgenus *Scorpiris*), need different treatment. Most of the former are very easy and freely-increasing bulbs for the garden, and only a few of the rarer species need to be grown from seed. Like those of the crocuses the seed capsules

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may be difficult to find at or below ground level, but the seed can be treated as usual.

The fascinating Juno irises need special treatment, often under glass, with a bone dry resting period in summer. Their bulbs have large permanent storage roots and it is essential to preserve these attached to the bulbs, great care being necessary when repotting. A few Junos germinate well from seed sown in Autumn and kept cold in winter. The tall blue *I. cycloglossa* is perhaps the easiest of the section for the garden, and it germinates freely during the first spring and matures quickly, so that the seedlings can be potted separately at the end of the first season. Most of the other species germinate erratically over the course of several years and it is necessary to put the whole potful into a larger pot after one or two have appeared, so that the ungerminated seed is left intact for later years.

Fritillaria

A genus that is extremely popular in the UK and deserves to be more widely grown elsewhere. Only a few are available in quantity and seed is the ideal method of propagation. Germination is very reliable but some species will wait for a year if sown too late in winter. Normal methods suit them well but a few thrive best in woodland conditions, given the treatment suggested above. Of these *F. pallidiflora* is one of the easiest and one of the most striking with its very large cream bells, often produced within three years. In general the Himalayan and Chinese species, and also the American woodlanders like *F. affinis* and *F. camschatcensis*, should all be given the same treatment and will take from three to five years to mature.

The easier species for the garden, like *F. pyrenaica* and *F. pontica*, do well if the pots of three or four year old seedlings are planted in a well-prepared freely-draining bed in the garden to mature, to save unnecessary handling.

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TAPEINOCHILOS ANANASSAE

THE SPICE OF LIFE / continued from page 5

of water gardens.

Kaempferia, the Peacock or Resurrection lilies. This group of about 50 Asian species are the real dwarfs of the cultivated ginger, few attaining more than 6" in height. Many produce tubers that exude the familiar familial aroma of ginger when bruised. The leaves, generally few in number, arise directly from the rootstock or on a very short stem. Ah, but what leaves they are! Virtually iridescent in one species (*K. atrovirens*), and beautifully variegated in many of the others, these peacocks of the ginger family make marvelous ground covers in the shade, demanding only moisture and a moderate levels of fertility. Throughout the spring, summer and fall, they unveil their showy lilac or white flowers afresh every morning. The only drawback to the Peacock lilies is their need for winter dormancy; as the short days of winter approach, they disappear with nary a trace, only to faithfully unfurl the new season's leaves the next spring. It is a small price to pay for such delicate beauty for three quarters of the year. *K. pulchra* produces 2-3 very round leaves held almost at ground level. They are dark green, marked silvery-green above, and frame the one and a half inch wide flowers perfectly. *K. roscoeana* from Burma is similar except the leaves are even rounder, with pale green markings above and a red flush below. The flowers of this species are white. *K. rotunda*, despite the name, is quite different in appearance. Its leaves are larger and longer, marked silver above and purple beneath. Its flowerstem is produced separately from the

leaves and bears conspicuous purple bracts from which white and lilac flowers emerge. The Peacock lilies are hardy through zone 9.

The hardest of the gingers are probably found in the genus *Roscoea*. The genus is 17 species strong, all native to the Himalayan region. Many can be grown in zone 6, withstanding -40 F. None achieve more than 2 feet in height. In overall foliage appearance, they are superficially similar to *Curcuma*, producing 1-4, usually oblong, leaves on short stems. *R. cauleoides*, with yellow flowers on stems separate from the foliage, and *R. purpurea*, with purple or white flowers from the leaf sheaths, make unusual additions to the woodland garden.

Resembling *Costus* in the spiral arrangement of the leaves on the stem, *Tapeinochilos ananassae*, Indonesian wax ginger, is arguably more spectacular and elegant. The only cultivated member of a genus of fifteen species, *T. ananassae* reaches 8 or more feet in height. It produces striking flowerstems in two ways, either directly from the rhizome, or at the end of a leafy stem. The leafless flowerstems tend to be larger and more spectacular. Looking somewhat like a red pineapple, the 6-8" long cluster of hard, pointed, brilliant red bracts surround the ephemeral yellow flowers. The flowerstems can last on the plant for months. Indonesian wax ginger is fairly tender, and can be used outdoors only in zones 10-11, where it enjoys partial shade and moist, fertile soil.

Zingiber, the true gingers, contains nearly 100 species, most of which produce their flowers on club-like inflorescences that rise from the rhizome separately from the reed-like, leafy stems. The flowers are rather fleeting, but the flowerstem is long-lasting and ornamental on two species in particular, *Z. spectabile* and *Z. zerumbet*. Both species can achieve six feet in height. The bracts of *Z. spectabile* are yellow,

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GENUS GALANTHUS / continued from page 5

on propagation by twin-scaling by Dr. Ronald Mackenzie that will undoubtedly inspire many to try their hand at this rapid means of propagating snowdrops. Those interested in the named garden selections will find a useful guide to 118 of the most widely grown cultivars, together with a very comprehensive bibliography.

Gardeners dislike name-changing by botanists, even though it is usually done for the best reasons. In *The Genus Galanthus* Aaron Davis makes a few minor emendations to the taxonomy of rarer species that will scarcely trouble gardeners, but there are a couple of major changes that will continue to challenge the compilers of catalogues and others tardy in their upgrading to new names. Both arise from misinterpretations in horticulture - a frequent cause of the changes abhorred by gardeners! The plants widely grown as forms of *Galanthus caucasicus* are shown to be merely variants of *G. elwesii* with only one mark on the inner segment, instead of the two of typical *G. elwesii*. This is a very feeble taxonomic distinction, especially as such plants are, remarkably, unknown in the wild; further, *G. caucasi-*

cus is in fact a synonym of the Caucasian *G. alpinus*, and has therefore been misapplied anyway. The other misinterpretation finally laid to rest is the name *Galanthus ikariae* var. *latifolius*, which has been wrongly applied to the distinct Caucasian *G. woronowii*. It will be interesting to see how long it takes for these names to disappear from catalogues; many years, I predict, despite the authority of the book.

In an era when shoddiness in book production is becoming a regrettable norm, it is refreshing to find a book so free of errors of any magnitude. I am sure that Aaron Davis would himself agree that it is not the final word on the genus *Galanthus*, either from a botanical or horticultural viewpoint; there is a lot of unknown territory out there in snowdrop-land, and new discoveries are not at all improbable in the future. For the present, however, we should be grateful that the known territory has been so skilfully mapped.

The first recorded wave of galanthophilia occurred in the 1890s; we are in the middle of the second, with thousands worldwide finding fascination in the charms of snowdrops. This book will fuel their enthusiasm. ❁

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BULBS FROM SEED / continued from page 9

Corydalis

This is a genus that is becoming extremely popular everywhere and the bulbous species can be grown from seed. Once germinated they can be grown on normally, but germination may be a problem as it is vital always to sow the seed as fresh as possible. The species have long slender capsules that are green at first and usually begin to turn to straw-coloured as they mature. They need to be watched carefully as they scatter their seed as soon as it is ripe. If a capsule is plump and beginning to change colour it will usually contain mature black seed, and any other similar capsules can be sown. If one capsule has already shed its seed, examine the others and they may all contain ripe seed even though still green. Sow the seed immediately in the usual way and it will germinate later in the summer or more often the following spring.

Calochortus

I find that these are easy by the normal methods and rarely wait a year to germinate even when sown in February or March. The young seedlings will often continue to grow well into summer and they should not be hurried into dormancy. The longer they can be kept growing the sooner they will flower, usually in three to five years. The young bulbs are very small and should be left two years before repotting. The species naturally occurring in woodland seem to do better if they are grown in a compost containing leafmould and not dried completely in summer.

Alstroemeria

As a result of recent collections from South America, seed of some of the most exciting species is often available. Good results are obtained if the seed pots are kept in bottom heat for about six weeks and are then kept cool but frost-free. A few will germinate during the hot period but they will more often germinate after

they are returned to cold conditions. They have a reputation for resenting root disturbance and I have always potted them up separately as soon as they are big enough to handle, generally within a few weeks of their first appearance. They are then repotted as soon as the roots reach the sides of the pot or planted in the garden at an early stage if they are sufficiently hardy.

Cyclamen

Although dry corms are often on sale they do not perform as well as the more expensive growing plants with roots, and seed is the ideal method of getting a good stock, which will often start flowering within two years of sowing.

All the species ripen their seed soon after midsummer irrespective of flowering time. When the capsules begin to split the seed should be removed and washed to get rid of the sticky secretion which attracts ants and may inhibit germination. It should then be sown immediately and thinly. I find the hardy species respond well to the treatment described for other bulbs. They may germinate quickly but more often wait until spring. The more orthodox treatment is to keep them around 60F until they germinate, probably during the winter, and

this is advisable for the tender species. The pots of young plants should be kept shaded and moist, and do better if they are not separated until after two seasons, even if they seem overcrowded.

Once established the hardiest species like *C. hederifolium*, *C. coum*, and *C. repandum*, set plenty of seed, and if this is not collected seedlings are likely to appear all over the garden, spread by ants.

Records

Keeping records, preferably on a database, adds greatly to the interest and the value of growing a lot of plants from seed. The records should show at least the name of the plant, source of seed, dates of sowing, of germination, of final planting, and of flowering, and whether heat was used. 🌱

THE SPICE OF LIFE / continued from page 9

aging to scarlet; those of *Z. zerumbet*, start out pale green then turn red. Both are striking different cut flowers.

Almost every landscape in the south-east has a niche for some of the aromatic and exotic allure of this unusual group of plants. Condiments, cut flowers, accent foliage, and ground covers; the ginger family is as multi-faceted as it is beautiful. 🌱

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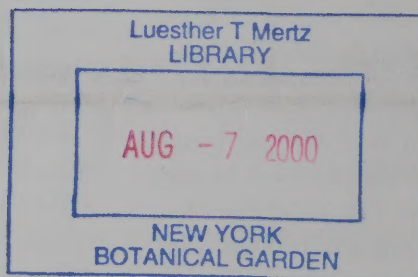
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